

SINGLE CRYSTAL TUNGSTEN PENETRATOR AND METHOD OF MAKING

Abstract of the Disclosure

High density single crystal penetrators are made from tungsten or from alloys containing at least 90% tungsten, and a remainder of essentially tantalum, rhenium, niobium, molybdenum or a mixture thereof. The penetrator will generally be circular in cross-section and have a length to diameter ratio of at least about 10 to 1, with the single
5 crystal body being aligned so the crystalline axis having the [100] orientation is parallel to the longitudinal axis of the penetrator. A penetrator having such desired crystalline characteristics can be formed by CVD about a heated substrate of body-centered cubic crystal material. One particularly efficient process utilizes static CVD in a closed chamber and employs a solid feedstock of polycrystalline tungsten material.